#7

OIPE

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/963,875

DATE: 02/07/2002
TIME: 13:27:56

ENTERED

Input Set : A:\EP.txt
Output Set: N:\CRF3\02072002\I963875.raw

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 3 <110> APPLICANT: Massachusetts General Hospital
 5 <120> TITLE OF INVENTION: Stem Cells of the Islets of Langerhans and Their Use in
Treating Diabetes
 6        Mellitus
 8 <130> FILE REFERENCE: 17633/1235
C--> 10 <140> CURRENT APPLICATION NUMBER: US/09/963,875
11 <141> CURRENT FILING DATE: 2001-09-26
13 <150> PRIOR APPLICATION NUMBER: US60/169082
14 <151> PRIOR FILING DATE: 1999-12-06
16 <150> PRIOR APPLICATION NUMBER: US 60/215109
17 <151> PRIOR FILING DATE: 2000-06-28
19 <150> PRIOR APPLICATION NUMBER: US 60/238880
20 <151> PRIOR FILING DATE: 2000-10-06
22 <150> PRIOR APPLICATION NUMBER: US 09/731261
23 <151> PRIOR FILING DATE: 2000-12-06
25 <160> NUMBER OF SEQ ID NOS: 58
27 <170> SOFTWARE: PatentIn version 3.1
29 <210> SEQ ID NO: 1
30 <211> LENGTH: 1618
31 <212> TYPE: PRT
32 <213> ORGANISM: Homo sapiens
34 <400> SEQUENCE: 1
36 Met Glu Gly Cys Met Gly Glu Glu Ser Phe Gln Met Trp Glu Leu Asn
37 1               5                  10                  15
40 Arg Arg Leu Glu Ala Tyr Leu Gly Arg Val Lys Ala Leu Glu Glu Gln
41              20                  25                  30
44 Asn Glu Leu Leu Ser Ala Gly Leu Gly Gly Leu Arg Arg Gln Ser Ala
45              35                  40                  45
48 Asp Thr Ser Trp Arg Ala His Ala Asp Asp Glu Leu Ala Ala Leu Arg
49      50                  55                  60
52 Ala Leu Val Asp Gln Arg Trp Arg Glu Lys His Ala Ala Glu Val Ala
53 65                  70                  75                  80
56 Arg Asp Asn Leu Ala Glu Glu Leu Glu Gly Val Ala Gly Arg Cys Glu
57              85                  90                  95
60 Gln Leu Arg Leu Ala Arg Glu Arg Thr Thr Glu Glu Val Ala Arg Asn
61              100                 105                 110
64 Arg Arg Ala Val Glu Ala Glu Lys Cys Ala Arg Ala Trp Leu Ser Ser
65              115                 120                 125
68 Gln Gly Ala Glu Leu Glu Arg Glu Leu Glu Ala Leu Arg Val Ala His
69      130                 135                 140
72 Glu Glu Glu Arg Val Gly Leu Asn Ala Gln Ala Ala Cys Ala Pro Arg
73 145                 150                 155                 160
76 Leu Pro Ala Pro Pro Arg Pro Pro Ala Pro Ala Pro Glu Val Glu Glu
77                  165                 170                 175
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Input Set : A:\EP.txt
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 80 Leu Ala Arg Arg Leu Gly Glu Ala Trp Arg Gly Ala Val Arg Gly Tyr
 81                180                           185              190
 84 Gln Glu Arg Val Ala His Met Glu Thr Ser Leu Asp Gln Thr Arg Glu
 85                195                 200                        205
 88 Arg Leu Ala Arg Ala Val Gln Gly Ala Arg Glu Val Arg Leu Glu Leu
 89           210                 215                 220
 92 Gln Gln Leu Gln Ala Glu Arg Gly Gly Leu Leu Glu Arg Arg Ala Ala
 93 225               230                 235                       240
 96 Leu Glu Gln Arg Leu Glu Gly Arg Trp Gln Glu Arg Leu Arg Ala Thr
 97           245                 250                             255
100 Glu Lys Phe Gln Leu Ala Val Glu Ala Leu Glu Gln Glu Lys Gln Gly
101           260                 265                 270
104 Leu Gln Ser Gln Ile Ala Gln Val Leu Glu Gly Arg Gln Gln Leu Ala
105           275                 280                 285
108 His Leu Lys Met Ser Leu Ser Leu Glu Val Ala Thr Tyr Arg Thr Leu
109      290                 295                 300
112 Leu Glu Ala Glu Asn Ser Arg Leu Gln Thr Pro Gly Gly Gly Ser Lys
113 305               310                 315                       320
116 Thr Ser Leu Ser Phe Gln Asp Pro Lys Leu Glu Leu Gln Phe Pro Arg
117           325                 330                             335
120 Thr Pro Glu Gly Arg Arg Leu Gly Ser Leu Leu Pro Val Leu Ser Pro
121           340                 345                 350
124 Thr Ser Leu Pro Ser Pro Leu Pro Ala Thr Leu Glu Thr Pro Val Pro
125           355                 360                 365
128 Ala Phe Leu Lys Asn Gln Glu Phe Leu Gln Ala Arg Thr Pro Thr Leu
129      370                 375                 380
132 Ala Ser Thr Pro Ile Pro Pro Thr Pro Gln Ala Pro Ser Pro Ala Val
133 385               390                 395                       400
136 Asp Ala Glu Ile Arg Ala Gln Asp Ala Pro Leu Ser Leu Leu Gln Thr
137           405                 410                             415
140 Gln Gly Gly Arg Lys Gln Ala Pro Glu Pro Leu Arg Ala Glu Ala Arg
141           420                 425                 430
144 Val Ala Ile Pro Ala Ser Val Leu Pro Gly Pro Glu Glu Pro Gly Gly
145           435                 440                 445
148 Gln Arg Gln Glu Ala Ser Thr Gly Gln Ser Pro Glu Asp His Ala Ser
149      450                 455                 460
152 Leu Ala Pro Pro Leu Ser Pro Asp His Ser Ser Leu Glu Ala Lys Asp
153 465               470                 475                       480
156 Gly Glu Ser Gly Gly Ser Arg Val Phe Ser Ile Cys Arg Gly Glu Gly
157           485                 490                             495
160 Glu Gly Gln Ile Trp Gly Leu Val Glu Lys Glu Thr Ala Ile Glu Gly
161           500                 505                 510
164 Lys Val Val Ser Ser Leu Gln Gln Glu Ile Trp Glu Glu Glu Asp Leu
165           515                 520                 525
168 Asn Arg Lys Glu Ile Gln Asp Ser Gln Val Pro Leu Glu Lys Glu Thr
169      530                 535                 540
172 Leu Lys Ser Leu Gly Glu Glu Ile Gln Glu Ser Leu Lys Thr Leu Glu
173 545               550                 555                       560
176 Asn Gln Ser His Glu Thr Leu Glu Arg Glu Asn Gln Glu Cys Pro Arg
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                        565                           570                    575
177
180 Ser Leu Glu Glu Asp Leu Glu Thr Leu Lys Ser Leu Glu Lys Glu Asn
181                 580                585                    590
184 Lys Arg Ala Ile Lys Gly Cys Gly Gly Ser Glu Thr Ser Arg Lys Arg
185             595             600                    605
188 Gly Cys Arg Gln Leu Lys Pro Thr Gly Lys Glu Asp Thr Gln Thr Leu
189         610                 615                620
192 Gln Ser Leu Gln Lys Glu Asn Gln Glu Leu Met Lys Ser Leu Glu Gly
193 625                     630                 635                    640
196 Asn Leu Glu Thr Phe Leu Phe Pro Gly Thr Glu Asn Gln Glu Leu Val
197                     645                 650                    655
200 Ser Ser Leu Gln Glu Asn Leu Glu Ser Leu Thr Ala Leu Glu Lys Glu
201                 660                 665                    670
204 Asn Gln Glu Pro Leu Arg Ser Pro Glu Val Gly Asp Glu Glu Ala Leu
205             675                 680                 685
208 Arg Pro Leu Thr Lys Glu Asn Gln Glu Pro Leu Arg Ser Leu Glu Asp
209         690                 695                 700
212 Glu Asn Lys Glu Ala Phe Arg Ser Leu Glu Lys Glu Asn Gln Glu Pro
213 705                 710                 715                    720
216 Leu Lys Thr Leu Glu Glu Glu Asp Gln Ser Ile Val Arg Pro Leu Glu
217                 725                 730                    735
220 Thr Glu Asn His Lys Ser Leu Arg Ser Leu Glu Glu Gln Asp Gln Glu
221             740                 745                 750
224 Thr Leu Arg Thr Leu Glu Lys Glu Thr Gln Gln Arg Arg Arg Ser Leu
225         755                 760                 765
228 Gly Glu Gln Asp Gln Met Thr Leu Arg Pro Pro Glu Lys Val Asp Leu
229     770                 775                 780
232 Glu Pro Leu Lys Ser Leu Asp Gln Glu Ile Ala Arg Pro Leu Glu Asn
233 785                 790                 795                    800
236 Glu Asn Gln Glu Phe Leu Lys Ser Leu Lys Glu Glu Ser Val Glu Ala
237             805                 810                 815
240 Val Lys Ser Leu Glu Thr Glu Ile Leu Glu Ser Leu Lys Ser Ala Gly
241         820                 825                 830
244 Gln Glu Asn Leu Glu Thr Leu Lys Ser Pro Glu Thr Gln Ala Pro Leu
245         835                 840                 845
248 Trp Thr Pro Glu Glu Ile Asn Lys Ser Gly Gly Asn Glu Ser Ser Arg
249     850                 855                 860
252 Lys Gly Asn Ser Arg Thr Thr Gly Val Cys Gly Ser Glu Pro Arg Asp
253 865                 870                 875                    880
256 Ile Gln Thr Pro Gly Arg Gly Glu Ser Gly Ile Ile Glu Ile Ser Gly
257             885                 890                 895
260 Ser Met Glu Pro Gly Glu Phe Glu Ile Ser Arg Gly Val Asp Lys Glu
261         900                 905                 910
264 Ser Gln Arg Asn Leu Glu Glu Glu Glu Asn Leu Gly Lys Gly Glu Tyr
265     915                 920                 925
268 Gln Glu Ser Leu Arg Ser Leu Glu Glu Glu Gly Gln Glu Leu Pro Gln
269 930                 935                 940
272 Ser Ala Asp Val Gln Arg Trp Glu Asp Thr Val Glu Lys Asp Gln Glu
273 945                 950                 955                    960
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276 Leu Ala Gln Glu Ser Pro Pro Gly Met Ala Gly Val Glu Asn Lys Asp
                        965                 970                 975
277 Glu Ala Glu Leu Asn Leu Arg Glu Gln Asp Gly Phe Thr Gly Lys Glu
280                 980                 985                 990
281 Glu Val Val Glu Gln Gly Glu Leu Asn Ala Thr Glu Glu  Val Trp Phe
284                 995                 1000                1005
285 Pro Gly  Glu Gly His Pro Glu Asn Pro Glu Pro Lys  Glu Gln Arg
288                 1010                1015                1020
289 Gly Leu  Val Glu Gly Ala Ser Val Lys Gly Gly Ala  Glu Gly Leu
292                 1025                1030                1035
293 Gln Asp  Pro Glu Gly Gln Ser Gln Gln Val Gly Thr  Pro Gly Leu
296                 1040                1045                1050
297 Gln Ala  Pro Gln Gly Leu Pro Glu Ala Ile Glu Pro  Leu Val Glu
300                 1055                1060                1065
301 Asp Asp  Val Ala Pro Gly Gly Asp Gln Ala Ser Pro  Glu Val Met
304                 1070                1075                1080
305 Leu Gly  Ser Glu Pro Ala Met Gly Glu Ser Ala Ala  Gly Ala Glu
308                 1085                1090                1095
309 Pro Gly  Leu Gly Gln Gly Val Gly Gly Leu Gly Asp  Pro Gly His
312                 1100                1105                1110
313 Leu Thr  Arg Glu Glu Val Met Glu Pro Pro Leu Glu  Glu Glu Ser
316                 1115                1120                1125
317 Leu Glu  Ala Lys Arg Val Gln Gly Leu Glu Gly Pro  Arg Lys Asp
320                 1130                1135                1140
321 Leu Glu  Glu Ala Gly Gly Leu Gly Thr Glu Phe Ser  Glu Leu Pro
324                 1145                1150                1155
325 Gly Lys  Ser Arg Asp Pro Trp Glu Pro Pro Arg Glu  Gly Arg Glu
328                 1160                1165                1170
329 Glu Ser  Glu Ala Glu Ala Pro Arg Gly Ala Glu Glu  Ala Phe Pro
332                 1175                1180                1185
333 Ala Glu  Thr Leu Gly His Thr Gly Ser Asp Ala Pro  Ser Pro Trp
336                 1190                1195                1200
337 Pro Leu  Gly Ser Glu Glu Ala Glu Glu Asp Val Pro  Pro Val Leu
340                 1205                1210                1215
341 Val Ser  Pro Ser Pro Thr Tyr Thr Pro Ile Leu Glu  Asp Ala Pro
344                 1220                1225                1230
345 Gly Leu  Gln Pro Gln Ala Glu Gly Ser Gln Glu Ala  Ser Trp Gly
348                 1235                1240                1245
349 Val Gln  Gly Arg Ala Glu Ala Gly Lys Val Glu Ser  Glu Gln Glu
352                 1250                1255                1260
353 Glu Leu  Gly Ser Gly Glu Ile Pro Glu Gly Leu Gln  Glu Glu Gly
356                 1265                1270                1275
357 Glu Glu  Ser Arg Glu Glu Ser Glu Glu Asp Glu Leu  Gly Glu Thr
360                 1280                1285                1290
361 Leu Pro  Asp Ser Thr Pro Leu Gly Phe Tyr Leu Arg  Ser Pro Thr
364                 1295                1300                1305
365 Ser Pro  Arg Trp Thr Pro Leu Glu Ser Arg Gly His  Pro Leu Lys
368                 1310                1315                1320
369 Glu Thr  Gly Lys Glu Gly Trp Asp Pro Ala Val Leu  Ala Ser Glu
372
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373     1325                        1330              1335
376 Gly Leu  Glu Glu Pro Ser Glu  Lys Glu Glu Gly Glu  Glu Gly Glu
377     1340                        1345              1350
380 Glu Glu  Cys Gly Arg Asp Ser  Asp Leu Ser Glu Glu  Phe Glu Asp
381     1355                        1360              1365
384 Leu Gly  Thr Glu Ala Pro Phe  Leu Pro Gly Val Pro  Gly Glu Val
385     1370                        1375              1380
388 Ala Glu  Pro Leu Gly Gln Val  Pro Gln Leu Leu Leu  Asp Pro Ala
389     1385                        1390              1395
392 Ala Trp  Asp Arg Asp Gly Glu  Ser Asp Gly Phe Ala  Asp Glu Glu
393     1400                        1405              1410
396 Glu Ser  Gly Glu Glu Gly Glu  Glu Asp Gln Glu Glu  Gly Arg Glu
397     1415                        1420              1425
400 Pro Gly  Ala Gly Arg Trp Gly  Pro Gly Ser Ser Val  Gly Ser Leu
401     1430                        1435              1440
404 Gln Ala  Leu Ser Ser Ser Gln  Arg Gly Glu Phe Leu  Glu Ser Asp
405     1445                        1450              1455
408 Ser Val  Ser Val Ser Val Pro  Trp Asp Asp Ser Leu  Arg Gly Ala
409     1460                        1465              1470
412 Val Ala  Gly Ala Pro Lys Thr  Ala Leu Glu Thr Glu  Ser Gln Asp
413     1475                        1480              1485
416 Ser Ala  Glu Pro Ser Gly Ser  Glu Glu Glu Ser Asp  Pro Val Ser
417     1490                        1495              1500
420 Leu Glu  Arg Glu Asp Lys Val  Pro Gly Pro Leu Glu  Ile Pro Ser
421     1505                        1510              1515
424 Gly Met  Glu Asp Ala Gly Pro  Gly Ala Asp Ile Ile  Gly Val Asn
425     1520                        1525              1530
428 Gly Gln  Gly Pro Asn Leu Glu  Gly Lys Ser Gln His  Val Asn Gly
429     1535                        1540              1545
432 Gly Val  Met Asn Gly Leu Glu  Gln Ser Glu Glu Ser  Gly Ala Arg
433     1550                        1555              1560
436 Asn Ala  Leu Val Ser Glu Gly  Asp Arg Gly Ser Pro  Phe Gln Glu
437     1565                        1570              1575
440 Glu Glu  Gly Ser Ala Leu Lys  Arg Ser Ser Ala Gly  Ala Pro Val
441     1580                        1585              1590
444 His Leu  Gly Gln Gly Gln Phe  Leu Lys Phe Thr Gln  Arg Glu Gly
445     1595                        1600              1605
448 Asp Arg  Glu Ser Trp Ser Ser  Gly Glu Asp
449     1610                        1615
452 <210> SEQ ID NO: 2
453 <211> LENGTH: 4854
454 <212> TYPE: DNA
455 <213> ORGANISM: Homo sapiens
457 <400> SEQUENCE: 2
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460 gcctacctgg gccgggtcaa ggcgctggag gagcagaatg agctgctcag cgccggactc  120
462 ggggggctcc ggcgacaatc cgcggacacc tcctggcggg cgcatgccga cgacgagctg  180
464 gcggccctgc gtgcgctcgt tgaccaacgc tggcgggaga agcacgcggc cgaggtggcg  240
466 cgcgacaacc tggctgaaga gctggagggc gtggcaggcc gatgcgagca gctgcggctg  300
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VERIFICATION SUMMARY
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DATE: 02/07/2002
TIME: 13:27:57

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Output Set: N:\CRF3\02072002\I963875.raw

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